

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

1. (Currently Amended) An integrated circuit, comprising:
a lead frame having a plurality of leads and having a current conductor portion comprising a coupling of at least two of the plurality of leads, each one of the leads having a respective length;
~~a current conductor portion comprising a coupling of at least two of the plurality of leads;~~
a substrate having first and second opposing surfaces, the first surface proximate to said ~~the~~ current conductor portion and the second surface distal from ~~thesaid~~ current conductor portion, wherein at least some of the leads of said lead frame are electrically coupled to said substrate; and
one or more magnetic field transducers disposed on the first surface of said substrate, wherein said substrate and said lead frame are relatively disposed in a flip-chip arrangement resulting in the current conductor portion being proximate to said one or more magnetic field transducers, and further resulting in an increased sensitivity of the integrated circuit to a magnetic field, wherein each one of the leads has a bend in a direction selected to result in each one of the leads being closer to the first surface of the substrate than to the second surface of the substrate throughout the length of the lead.

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) The integrated circuit of Claim 1, wherein ~~thesaid~~ current conductor portion further comprises a conductive clip coupled to the at least two of the plurality of leads.

1 5. (Original) The integrated circuit of Claim 4, wherein said substrate is disposed having the
2 first surface of said substrate above said conductive clip and the second surface of said substrate
3 above the first surface.

1 6. (Original) The integrated circuit of Claim 4, wherein said substrate is disposed having the
2 first surface of said substrate below said conductive clip and the second surface below the first
3 surface.

1 7. (Original) The integrated circuit of Claim 4, wherein a thickness of the conductive clip is
2 selected in accordance with a current passing through the conductive clip.

1 8. (Original) The integrated circuit of Claim 1, wherein said substrate has at least one bonding
2 pad coupled to a corresponding one of the plurality of leads with a bond wire.

1 9. (Previously Presented) The integrated circuit of Claim 1, wherein said substrate is coupled to
2 said lead frame with a selected one of a solder ball, a gold bump, a eutectic and high lead solder
3 bump, a no-lead solder bump, a gold stud bump, a polymeric conductive bump, or an anisotropic
4 conductive paste coupled to a corresponding one of the plurality of leads.

1 10. (Original) The integrated circuit of Claim 1, wherein the current conductor portion has a
2 current conductor portion axis and at least two of said one or more magnetic field transducers are
3 disposed on opposite sides of the current conductor portion axis.

1 11. (Original) The integrated circuit of Claim 1, wherein at least two of said one or more
2 magnetic field transducers are rotated relative to each other for providing predetermined voltage
3 output polarities.

1 12. (Currently Amended) The integrated circuit of Claim 1, wherein at least a ~~portion~~ part of
2 the said current conductor portion has a T-shaped cross section, the T-shaped cross section taken
3 through a thickness direction of the current conductor portion, the T-shaped cross section
4 resulting in an increased magnetic field proximate to the current conductor portion, and
5 therefore, proximate to said one or more magnetic field transducers.

1 13. (Currently Amended) The integrated circuit of Claim 1, wherein at least a ~~portion~~ part of
2 the said current conductor portion has a thinned rectangular cross section having a minimum
3 dimension less than a thickness of other portions of said lead frame, the thinned rectangular cross
4 section taken through a thickness direction of the current conductor portion, the thinned
5 rectangular cross section resulting in an increased magnetic field proximate to the current
6 conductor portion, and therefore, proximate to said one or more magnetic field transducers.

1 14. (Original) The integrated circuit of Claim 1, further comprising at least one amplifier
2 disposed on said substrate.

1 15. (Original) The integrated circuit of Claim 14, wherein the at least one amplifier provides an
2 output signal proportional to a sum of signals generated by at least two of said one or more
3 magnetic field transducers.

1 16. (Original) The integrated circuit of Claim 14, wherein the at least one amplifier forms a
2 summing arrangement coupled to four of said one or more magnetic field transducers.

1 17. (Original) The integrated circuit of Claim 1, further comprising a flux concentrator disposed
2 proximate said one or more magnetic field transducers.

1 18. (Original) The integrated circuit of Claim 1, further comprising a flux concentrating layer
2 disposed proximate the second surface of said substrate.

19-24. (Canceled)

25-28. (Canceled)

29. (Currently Amended) An integrated circuit, comprising:

a ~~single-lead frame~~ having a plurality of leads and having :

——— a current conductor portion comprising a coupling of at least two of the plurality of leads, wherein the coupling of at least two of the plurality of leads ~~current conductor portion comprises~~ a loop, the at least two of the leads and the loop forming a continuous electrical path entirely formed of lead frame material; having an inner dimension;

a substrate having first and second opposing surfaces, the first surface proximate to ~~the said~~ current conductor portion and the second surface distal from ~~the said~~ current conductor portion, whercin at least some of the leads of said lead frame are electrically coupled to said substrate; and

one or more magnetic field transducers disposed on the first surface of said substrate and proximate to the loop such that the one or more magnetic field transducers are responsive to a current flowing through the loop.

30. (Currently Amended) The integrated circuit of Claim 29, wherein at least one of the one or more magnetic field transducers is disposed within ~~the~~ an inner dimension of the loop.

31. (Currently Amended) The integrated circuit of Claim 29, wherein at least a ~~portion-part~~ of ~~the said~~ current conductor portion has a generally T-shaped cross section, the cross section taken through a thickness direction of the current conductor portion, the T-shaped cross section resulting in an increased magnetic field proximate to the current conductor portion, and therefore, proximate to said one or more magnetic field transducers.

32. (Currently Amended) The integrated circuit of Claim 29, wherein at least a ~~portion-part~~ of ~~the said~~ current conductor portion has a ~~generally-thinned~~ rectangular cross section having a

3 smallest dimension less than a thickness of other portions of said lead frame, the thinned
4 rectangular cross section taken through a thickness direction of the current conductor portion, the
5 thinned rectangular cross section resulting in an increased magnetic field proximate to the
6 current conductor portion, and therefore, proximate to said one or more magnetic field
7 transducers.

1 33. (Currently Amended) The integrated circuit of Claim 29, wherein each one of the leads has
2 a bend in a direction selected to result in each one of the leads being closer to the first surface of
3 ~~the substrate~~said substrate than to the second surface of ~~the substrate~~said substrate throughout a
4 length of the lead.

1 34-35. (Canceled)

1 36. (Previously Presented) The integrated circuit of Claim 1, further including a solder ball
2 disposed to electrically couple said substrate to said lead frame.

1 37. (Previously Presented) The integrated circuit of Claim 1, further including a stud bump
2 disposed to electrically couple said substrate to said lead frame.

1 38. (Currently Amended) The integrated circuit of Claim 1, wherein ~~the~~said current conductor
2 portion has an edge bounding a surface of ~~the~~said current conductor portion, and wherein said
3 one or more magnetic field transducers are disposed on the first surface of said substrate
4 proximate to ~~the~~said current conductor portion and in a position such that neither the edge of
5 ~~the~~said current conductor portion nor ~~the a~~ surface of ~~the~~said current conductor portion overlaps
6 said one or more magnetic field transducers.

1 39. (Currently Amended) The integrated circuit of Claim 1, wherein at least some of the leads
2 of said lead frame are electrically coupled to said substrate, comprising a single lead frame.

1 40. (New) The integrated circuit of Claim 1, wherein each one of the leads has a bend in a
2 direction selected to result in each one of the leads being closer to the first surface of said
3 substrate than to the second surface of said substrate throughout a length of the lead.

1 41. (New) The integrated circuit of Claim 29, wherein said substrate and said lead frame are
2 relatively disposed in a flip-chip arrangement resulting in the current conductor portion being
3 proximate to said one or more magnetic field transducers, and further resulting in an increased
4 sensitivity of the integrated circuit to a magnetic field.